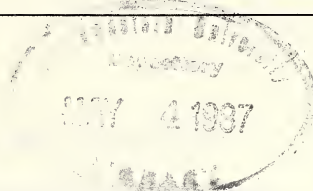


DN
S
RUB



IMPROVING THE SAFETY OF AIR TRAFFIC CONTROL
AT CHICAGO'S O'HARE INTERNATIONAL AIRPORT:
FAA OVERSIGHT

TRANSPORTATION LIBRARY

AUG 20 1989

FOURTH REPORT

BY THE

NORTHWESTERN UNIVERSITY

COMMITTEE ON GOVERNMENT
OPERATIONS

together with

ADDITIONAL VIEWS

WITHDRAWN



APRIL 15, 1987.—Committed to the Committee of the Whole House on the
State of the Union and ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE

71-544

WASHINGTON : 1987

TRAN

HE

9797 7C4

I 34

COMMITTEE ON GOVERNMENT OPERATIONS

JACK BROOKS, Texas, *Chairman*

JOHN CONYERS, Jr., Michigan
CARDISS COLLINS, Illinois
GLENN ENGLISH, Oklahoma
HENRY A. WAXMAN, California
TED WEISS, New York
MIKE SYNAR, Oklahoma
STEPHEN L. NEAL, North Carolina
DOUG BARNARD, Jr., Georgia
BARNEY FRANK, Massachusetts
TOM LANTOS, California
ROBERT E. WISE, Jr., West Virginia
MAJOR R. OWENS, New York
EDOLPHUS TOWNS, New York
JOHN M. SPRATT, Jr., South Carolina
JOE KOLTER, Pennsylvania
BEN ERDREICH, Alabama
GERALD D. KLECZKA, Wisconsin
ALBERT G. BUSTAMANTE, Texas
MATTHEW G. MARTINEZ, California
THOMAS C. SAWYER, Ohio
DAVID E. SKAGGS, Colorado
LOUISE M. SLAUGHTER, New York
BILL GRANT, Florida

FRANK HORTON, New York
ROBERT S. WALKER, Pennsylvania
WILLIAM F. CLINGER, Jr., Pennsylvania
AL McCANDLESS, California
LARRY E. CRAIG, Idaho
HOWARD C. NIELSON, Utah
JOSEPH J. DiOGUARDI, New York
JIM LIGHTFOOT, Iowa
BEAU BOULTER, Texas
DONALD E. "BUZ" LUKENS, Ohio
AMORY HOUGHTON, Jr., New York
J. DENNIS HASTERT, Illinois
JON L. KYL, Arizona
ERNEST L. KONNYU, California
JAMES M. INHOFE, Oklahoma

WILLIAM M. JONES, *General Counsel*

STEPHEN M. DANIELS, *Minority Staff Director and Counsel*

GOVERNMENT ACTIVITIES AND TRANSPORTATION SUBCOMMITTEE

CARDISS COLLINS, Illinois, *Chairwoman*

MAJOR R. OWENS, New York
ROBERT E. WISE, Jr., West Virginia
JOE KOLTER, Pennsylvania
GERALD D. KLECZKA, Wisconsin
THOMAS C. SAWYER, Ohio

HOWARD C. NIELSON, Utah
J. DENNIS HASTERT, Illinois
DONALD E. "BUZ" LUKENS, Ohio

EX OFFICIO

JACK BROOKS, Texas

FRANK HORTON, New York

JOHN GALLOWAY, *Staff Director*

CECELIA MORTON, *Clerk*

KEN SALAETS, *Minority Professional Staff*

LETTER OF TRANSMITTAL

HOUSE OF REPRESENTATIVES,
Washington, DC, April 15, 1987.

Hon. JIM WRIGHT,
Speaker of the House of Representatives,
Washington, DC.

DEAR MR. SPEAKER: By direction of the Committee on Government Operations, I submit herewith the committee's fourth report to the 100th Congress. The committee's report is based on a study made by its Government Activities and Transportation Subcommittee.

JACK BROOKS, *Chairman.*

(III)

CONTENTS


	Page
I. Introduction.....	1
II. National Transportation Safety Board investigation.....	2
A. Staffing levels.....	3
B. Supervisor selection process.....	4
C. Controller recertification and training.....	4
D. Failure to follow noise abatement procedures.....	5
E. Flow control problems.....	6
III. Federal Aviation Administration response.....	7
IV. Discussion.....	8
A. The FAA.....	8
B. The NTSB.....	10
V. Findings.....	13
VI. Recommendations.....	13

APPENDIXES

Appendix 1.—Synopsis of ORD errors 1985.....	17
Appendix 2.—Synopsis of ORD errors 1986.....	19

VIEWS

Additional views of Hon. J. Dennis Hastert.....	21
---	----



Digitized by the Internet Archive
in 2012 with funding from
CARLI: Consortium of Academic and Research Libraries in Illinois

Union Calendar No. 43

100TH CONGRESS }
1st Session }

HOUSE OF REPRESENTATIVES }

REPORT
100-55

IMPROVING THE SAFETY OF AIR TRAFFIC CONTROL AT CHICAGO'S O'HARE INTERNATIONAL AIRPORT: FAA OVERSIGHT

APRIL 15, 1987.—Committed to the Committee of the Whole House on the State of
the Union and ordered to be printed

Mr. BROOKS, from the Committee on Government Operations,
submitted the following

FOURTH REPORT

together with

ADDITIONAL VIEWS

BASED ON A STUDY BY THE GOVERNMENT ACTIVITIES AND
TRANSPORTATION SUBCOMMITTEE

On April 7, 1987, the Committee on Government Operations approved and adopted a report entitled "Improving the Safety of Air Traffic Control at Chicago's O'Hare International Airport: FAA Oversight." The chairman was directed to transmit a copy to the Speaker of the House.

I. INTRODUCTION

This report of the Government Operations Committee on air traffic controller errors at Chicago's O'Hare International Airport follows an investigation and February 27, 1987 hearing conducted by its Subcommittee on Government Activities and Transportation under the direction of subcommittee Chairwoman, Cardiss Collins.

The subcommittee investigation followed a dramatic increase in reported controller errors and near collisions between commercial aircraft both on the ground and in the air above O'Hare.

The report is based on testimony from air traffic controllers, the Federal Aviation Administration (FAA), the National Transportation Safety Board (NTSB), the General Accounting Office (GAO), a

former commercial airline pilot/transportation reporter and the subcommittee's independent findings.

II. NATIONAL TRANSPORTATION SAFETY BOARD INVESTIGATION

There has been an alarming and unacceptably high level of reported FAA air traffic controller operational errors at Chicago's O'Hare International Airport.¹

In 1986, there were 23 operational errors at O'Hare, a 65-percent increase over the 14 reported errors the previous year.² That increase occurred, moreover, in the face of a 13-percent decline in such errors nationwide.³ By contrast, there were eight operational errors at Atlanta International Airport and seven at each Dallas/Fort Worth and Los Angeles International Airports in 1986.⁴ That amounts to approximately three times more errors at O'Hare than at those two other airports. Thus far in 1987 there have been three operational errors reported at O'Hare, the most recent having occurred February 10.⁵

As disturbing as those numbers are, moreover, it is apparent that not all controller errors at O'Hare are being reported. For example, an FAA prepared list and description of recent operational errors at O'Hare does not include a March 13, 1985 operational error that lead to the death of a pilot whose small commercial aircraft was blown over and crushed by the engine blasts of a 747.⁶

The National Transportation Safety Board (NTSB) has also investigated four recent controller errors at O'Hare involving commercial aircraft. The circumstances surrounding each of those incidents, as determined by the NTSB, are as follows:⁷

February 25, 1986.—On that date a United Airlines DC-8 traveling at 80 mph down a runway at O'Hare prior to takeoff narrowly avoided crashing into a 50-seat Air Wisconsin F-27 on final approach for landing on an intersecting runway. The DC-8 captain saw the approaching Air Wisconsin aircraft and held his plane on the ground until the other aircraft crossed his departure path. The Air Wisconsin plane overflew the DC-8 near the intersection of the two runways, passing less than 150 feet above the DC-8. The DC-8 captain reported that had he lifted off normally, the two planes would have collided.

May 17, 1986.—Less than three months later, on May 17, 1986, a similar controller error resulted in a near-collision between two jets during takeoffs on intersecting runways. That near catastrophe

¹ An operational error is the term used to describe an air traffic controller error that results in two aircraft coming within less than the minimum permitted distance.

² FAA, "Synopsis of ORD [O'Hare International Airport] Errors 1985," and "Synopsis of ORD Errors 1986" reprinted as Appendixes 1 and 2.

³ Testimony of Joseph T. Nall, Member National Transportation Safety Board before the Subcommittee on Government Activities and Transportation Subcommittee of the Committee on Government Operations, House of Representatives, 100th Congress, 1st Session (February 27, 1987), "Near Misses and Air Traffic Control Issues in Chicago," p. 4. Hereinafter referred to as *Hearing*.

⁴ Hearing testimony of Joseph T. Nall, Member National Transportation Board, p. 1. *Hearing*. The number of operations at Atlanta, is comparable to O'Hare. Dallas/Fort Worth and Los Angeles each handle approximately 75 percent of the traffic at O'Hare.

⁵ Nall testimony, p. 2.

⁶ "Synopsis of ORD Errors 1985," Appendix 1.

⁷ The summaries of the four errors are based on Nall testimony, NTSB Safety Recommendations A-86-44 through -46 (May 27, 1986) and NTSB Safety Recommendations, A-87-3 through -7 (February 6, 1987).

involved a U.S. Air DC-9 with 116 passengers and crew and an American Airlines 727 with 109 passengers and crew. The first officer of the DC-9, who was piloting the aircraft, reported that he observed the American Airlines plane taking off on an intersecting runway and that the two planes were on a collision course. The pilot lifted his plane off the ground at a slower than normal air-speed and banked slightly to the right to avoid a collision as his plane flew directly over the top of the American Airlines plane, inflicting minor wind damage to the plane below.

June 29, 1986.—This incident involved an Air Wisconsin F-27 and a United 727. The Air Wisconsin flight had departed from O'Hare on a northeast course. Within minutes, the United 727 was cleared for takeoff with a different heading. When the Air Wisconsin flight was one mile northeast of the airport it was directed by a controller to turn right, which placed it on the same course as the trailing United plane. The United jet then began to overtake the slower turbo prop plane until the error was detected by an automatic conflict alarm system.

July 2, 1986.—This operational error resulted after two passenger jets had been cleared by different controllers to depart O'Hare on separate runways early in the morning. The error occurred because the two controllers did not coordinate with each other. One controller cleared a United 737 to fly a noise abatement heading after takeoff while another controller cleared a Western Airlines 727 for takeoff with an immediate left turn, under a normal non-noise abatement departure procedure. As a consequence, the two jets came within only 2,600 feet of each other horizontally and 400 feet vertically, two miles west of the airport.

Following the June 29 and July 2, 1986 controller errors, and with reported controller operational errors at O'Hare running at the rate of one every 13 days,⁸ the NTSB initiated an investigation. The results of that inquiry and a series of recommendations were issued by the NTSB February 6, 1987.⁹

The NTSB investigation found serious fault with air traffic controller qualifications and staffing levels, supervision, flow control, controller requalification after being involved in an error, and quality assurance and training at O'Hare.

A. STAFFING LEVELS

In reviewing staffing levels, the NTSB determined that O'Hare was short of senior, full performance level controllers (FPLs). That created what subcommittee Chairwoman Collins has called a "Catch-22 situation."

Too few controllers means that less experienced controllers cannot be given the time to upgrade their skills, while the full performance level controllers are forced to work excessive periods under overly stressful conditions. That, in turn, discourages controllers from transferring to Chicago. Additionally, supervisors are forced to fill in as controllers in neglecting their supervisory duties.¹⁰

⁸ Nall testimony, p. 4.

⁹ NTSB Safety Recommendations (February 6, 1987.)

¹⁰ Hearing, p. 3A.

According to the NTSB in its February 1987 report:

The low number of FPL controllers at O'Hare required the facility to make several adjustments in order to meet their [sic] operational shift coverage. One of these adjustments required both facility staff specialists and staff officers to work operational positions for a substantial amount of time. For example, during June 1986, staff specialists and staff officers spent 37.9 percent and 17.7 percent of their time, respectively, working on operational positions. Also, on-the-job training (OJT) had been curtailed to provide adequate position coverage, particularly during the summer and other prime time vacation periods. Finally, these staffing problems required many controllers to work at their positions for excessive time periods before receiving a relief break.¹¹

B. SUPERVISOR SELECTION PROCESS

During its investigation of the June 29 and July 2 controller errors, the NTSB learned that the same control tower cab supervisor was on duty when both incidents occurred and that he failed to recognize either operational error as it was developing. The cab supervisor was a newly appointed tower supervisor who had been certified for tower work only two weeks previously. According to the NTSB, the supervisor's "previous experience was as a controller at the Chicago Air Route Traffic Center and more recently, for 8 years, he was a controller at the O'Hare terminal radar control facility . . . He had no previous FAA tower cab experience." [Emphasis added.]¹²

As further stated by the NTSB:

[T]he supervisor should have been more effective in monitoring the overall safety of operations during the time that both operational errors occurred. His performance probably was attributable to his limited experience in the tower cab. *The Safety Board is concerned that this individual was selected as a tower cab supervisor at the nation's busiest airport without any prior tower cab experience.* [Emphasis added.]¹³

C. CONTROLLER RECERTIFICATION AND TRAINING

Again, during the course of its investigation of the June 29 and July 2, 1986 incidents, the NTSB determined that the controller who was involved in the June 29 error was also involved in the May 17, 1986 operational error. Appropriately after the May 17 operational error the controller was removed from operational duty and given 6½ hours of over-the-shoulder training by his immediate supervisor over a 10-day period during heavy and very heavy traffic. The controller was subsequently tested and recertified for return to operational duty on May 27, 1986.

¹¹ NTSB, Safety Recommendations (February 6, 1987), p. 4.

¹² Ibid., p. 5.

¹³ Ibid., p. 6.

In less than a month after his return to duty, however, the same controller figured prominently in the June 29 operational error. Yet, inexplicably after that second error the controller received only 1½ hours of additional training by a nonsupervisor before being returned to duty. According to the NTSB: "The controller was not counseled about the incident by any of the facility's quality assurance and training staff, and his immediate supervisor was not involved in any part of his recertification," contrary to FAA regulations.¹⁴

In reviewing the training records of the two controllers involved in the July 2 incident that resulted from confusion over noise abatement procedures, the NTSB determined that both controllers were returned to operational duty within a few hours after brief, informal performance reviews.

In discussing the June 29 and July 2 operational errors the NTSB expressed concern that:

[T]he immediate supervisor of each controller did not participate in the recertification process; the facility's quality assurance and training staff did not participate in any of the recertifications; FPL controllers conducted over-the-shoulder evaluations instead of appropriate supervisory personnel. . . .

In one case, the area manager conducted the recertification actions; in another case, the controller received only 1½ hours of training after his second operational error in a month, while in another case both controllers were recertified only a few hours after the operational errors occurred.¹⁵

D. FAILURE TO FOLLOW NOISE ABATEMENT PROCEDURES

As previously mentioned, the July 2, 1986 controller error was caused when one controller directed an aircraft to follow airport noise abatement procedures while another controller ignored that requirement in directing a second aircraft on a potential collision course while an inexperienced supervisor was oblivious to what was happening.

Pursuant to an agreement reached with the City of Chicago, the FAA requires the use of noise abatement procedures from 10:00 p.m. to 7:00 a.m. unless suspended by a supervisor due to heavy traffic or safety considerations. Basically, FAA procedures require the use of certain arrival and departure runways and specific headings to be used upon takeoff. Although traffic was light, the mid-night supervisor, who was working the north and south control tower positions combined, had stopped using noise abatement procedures before being relieved at 6:38 a.m. One day shift controller proceeded to work the north position and the other worked the south position. The error occurred shortly after they assumed their positions. One day shift relief controller directed a United plane on a noise abatement heading while the second controller ordered the

¹⁴ Ibid., p. 8.

¹⁵ Ibid., p. 9.

Western Airlines flight on a non-noise abatement heading, which intersected the United course.

The confusion was a direct consequence of the FAA's practice of suspending noise abatement procedures at various times each morning prior to the prescribed 7:00 a.m. cut off time.

That was not the only incident that involved the FAA's violation of Chicago noise abatement procedures. In March 1985, similar negligence contributed to the death of the pilot and sole occupant of a small commercial aircraft that was turned over and crushed while taxiing behind the engine blasts of a 747.

In that case, a 747 was permitted by the O'Hare control tower to "run-up" its engines as part of a mechanical test in a special test area. That run-up pad was close to a taxiway that was supposed to be closed to other aircraft during such tests. A controller, however, directed the air taxi to proceed to a hanger by way of the supposedly "closed" runway. The smaller aircraft came within 85 feet of the rear of the 747 and was flipped over by the engine blasts, crushing the cabin and killed the pilot. Subsequent inquiry revealed that the 747 was facing in a southwesterly direction during the test, although the Airport Noise Directive required the plane to be facing the opposite direction, to the northeast. Had the larger plane been headed in the correct direction the accident would not have occurred, despite the controller having assigned the small craft to the wrong taxiway.

In spite of an order from the O'Hare Air Traffic Control manager directing the positioning of aircraft during engine "runups", subsequent inquiry revealed that supervisory control tower personnel had a "hands-off policy [towards] directing aircraft on run-up pads to face in any particular direction . . ." ¹⁶

E. FLOW CONTROL PROBLEMS

During its investigation of the June 29 and July 2 operational errors, NTSB investigators "became concerned about heavy air traffic demands at O'Hare with regard to controller performance and workload." ¹⁷

The FAA has two systems designed to prevent unsafe levels of traffic at major airports. Under the FAA's Performance Measurement System, standards have been developed for major airports, including O'Hare, to set an airport's hourly capacity (acceptance rate) of traffic. That measure is determined on the basis of certain statistical data, including runway configurations, number of aircraft handled and traffic mix. The resulting acceptance rate varies according to wind and weather conditions. A random check by NTSB investigations determined that the applicable capacity standards were "never significantly exceeded" at O'Hare. ¹⁸ Nevertheless, the NTSB determined that "the capabilities of typical air traffic controllers to safely handle various traffic flow complexities are not directly considered [by the FAA] during the development of these standards." ¹⁹

¹⁶ NTSB, Factual Report Aviation Accident, March 13, 1985 (July 30, 1986), p. 2b.

¹⁷ NTSB Safety Recommendations (February 6, 1987), p. 6.

¹⁸ *Ibid.*, p. 7.

¹⁹ *Ibid.*

Additionally, O'Hare Airport has been designated a high density traffic airport by the FAA. That has resulted in the FAA's establishment of a High Density Rule that limits the maximum number of hourly takeoffs and landings that may be reserved for certain categories of users. In 1973, the High Density Rule for O'Hare was originally set at a maximum of 135 operations per hour. Following a formal action by United Airlines in 1981 to rescind the High Density Rule, the following year the FAA "increased the quota to 155 operations per hour at O'Hare based upon 'airport and air traffic system changes since the rule was first promulgated,' rather than rescind the High Density Rule."²⁰

In concluding its investigation of the June 29 and July 2, 1986 controller errors at O'Hare and its determination as to the underlying causes of those near disasters, the NTSB recommended that:

(1) The FAA implement an improved and more effective air traffic controller training program at O'Hare to bring additional development controllers to a full performance level rating in a timely manner.

(2) The FAA review its personnel selection and promotion programs at O'Hare to assure that prospective tower supervisors have prior tower experience before becoming tower supervisors.

(3) The FAA review the methodology used to establish the Engineered Performance Standards and High Density Rule at O'Hare "to ensure that air traffic controller staffing levels and performance limitations are accounted for appropriately and that air traffic controllers team capabilities are not exceeded during peak traffic periods."

(4) The FAA review its Quality Assurance and Training Program at O'Hare.

(5) The FAA make certain that air traffic controllers at O'Hare, who have been involved in an operational error, "are counseled, trained and recertified" as required by FAA regulations.²¹

III. FEDERAL AVIATION ADMINISTRATION RESPONSE

Under law the FAA must respond to NTSB safety recommendations within 90 days in stating what actions (if any) it plans to take in response to each recommendation. In the case of the NTSB February 6 report on O'Hare air traffic control, the FAA response is due no later than May 7, 1987.

Within less than a week after the release of the highly critical NTSB report, Paul K. Bohr, the then Regional Director of the FAA Great Lakes Region, which includes Chicago, issued his own four-page rebuttal.²² In reviewing staffing, Mr. Bohr maintained that the FAA had already "taken significant actions to increase the number of personnel" at O'Hare. According to Mr. Bohr, since November 1, 1986, the FAA has approved the transfer of an additional

²⁰ Ibid.

²¹ Ibid., pp. 10-11.

²² Statement of Paul K. Bohr, Regional Director, Great Lakes Region, FAA (February 12, 1987). Hereinafter cited a Bohr statement.

13 controllers to O'Hare, all of whom were scheduled to begin work within the next three months, according to Mr. Bohr. Additionally, the FAA was said to have revitalized a recruiting and screening process "unique" to O'Hare where controllers are brought to the facility for a try out without jeopardizing their position at their old facility.²³

Of the five NTSB recommendations, the potentially most far reaching was that the FAA assure that "air traffic controller team capabilities are not exceeded during peak traffic periods". That suggests the possible need to reduce airport "rush hour traffic" for safety reasons.

The FAA Regional Director's rejection of that proposal was brief and to the point. There was no need to even consider the possible need to reduce peak traffic because:

Daily traffic loads are controlled by traffic management process. These processes include consideration for airport conditions, runway configurations, controller availability, weather, and many other factors which require day-to-day and sometimes hour-to-hour decision making.²⁴

Additionally, in minimizing the NTSB findings, Mr. Bohr argued that the FAA at O'Hare had already taken steps "to improve the Quality Assurance and Training Programs." According to Bohr, those actions included:

[M]anagement and supervisory emphasis on quality assurance and training.

[A planned increase in] permanent staffing in the quality assurance and training function from 2 to 10.²⁵

IV. DISCUSSION

A. THE FAA

The NTSB February 1987 findings on safety deficiencies regarding O'Hare Airport traffic control deeply concern the Committee. What emerged from that study is not a pattern of individual controller error per se, but a pattern of poor coordination and communication between controllers and a seemingly lax attitude concerning required or common sense operating procedures. That in turn suggests poor management and faulty system controls. Of particular importance are the NTSB's criticisms regarding management's failure to recertify controllers involved in operational errors in accordance with FAA regulations and its failure to remedy previously noted deficiencies, particularly with regard to quality assurance and training.

In May 1985, for example, a Management and Operational Effectiveness Evaluation was conducted at O'Hare by the quality assurance staff from FAA Washington headquarters. The resulting report identified numerous problems, including systemic deficiencies

²³ Ibid., pp. 1-2. Given the demands of working at O'Hare, only controllers who have previously attained a full performance level rating at another facility are currently considered for transfer to O'Hare.

²⁴ Bohr statement, p. 4.

²⁵ Ibid., pp. 2-3.

cies regarding nonstandard coordination between controllers, use of improper air traffic control phraseology, incomplete position relief briefings and transfer of position responsibility. Additionally, controllers did not always obtain acknowledgment from a pilot that another aircraft was in sight prior to instructing the pilot to maintain visual separation. Regarding quality assurance, the inspection report noted flatly: "The facility has not implemented a quality assurance program as required" by FAA regulations.²⁶

A year later in the spring of 1986, an Operational Error Prevention Evaluation was conducted by the FAA Great Lakes Regional Office. The evaluation found that many of the previous year's problems at O'Hare persisted. In addition, the evaluation noted that crew briefings on previous operational errors were conducted as late as four to six months after the error occurred, training folders were as much as six months out of date and did not include the cause of previous operational errors nor document the remedial training given controllers who committed such errors. Further, the report found that controllers received poor on-the-job training on proper coordination between controllers.²⁷

An internal O'Hare management/employee report completed a few months later strongly reinforced previous criticisms concerning controller training. According to that August 1986 report, 80 percent of the controllers interviewed saw training as lacking "consistency and direction":

Training technique varies widely from crew to crew with no consistent standards for position certification. Although training is not stopped during prime leave period, it is reduced. Training specialists as well as other qualified staff personnel are still used as operational coverage which affects continuity.

Additionally, that third report emphasized, among other issues, that:

. . . Not all persons performing OJT [on-the-job training] are qualified or talented in this area.
 . . . Supervision of the training process is lax.
 . . . No facility standards [exist] for position certification.²⁸

This Committee shares the Safety Board's concern that problems identified in 1985 had not been corrected a year later.

As noted by the Safety Board, "many, if not all of these deficiencies" were contributing factors to the four operational errors that the Safety Board investigated at O'Hare during 1986. These same problems were also involved in several of the other 10 operational errors that have occurred at O'Hare from January 1 to July 2, 1986.²⁹

²⁶ L. Lane Speck, Acting Manager Quality Assurance Staff, "Managerial and Operational Effectiveness Evaluation—O'Hare Tower, May 13-17, 1985" (August 6, 1985).

²⁷ Manager, Quality Assurance Staff, "Operational Error Prevention Evaluation, O'Hare Tower, April 28-May 8, 1986" (May 16, 1986).

²⁸ Chairman Evaluation Team, "Internal Evaluation of O'Hare" (August 1, 1986).

²⁹ NTSB Safety Recommendations (February 6, 1987), p. 10.

In particular, most of the deficiencies reported by the FAA evaluation teams and the NTSB, which have figured prominently in operational errors at O'Hare, are traceable to poor quality assurance and training. Yet having established a quality assurance program following the 1985 evaluation, FAA management did not adequately staff that important function. Again, according to the NTSB:

There is no standardized oversight of the quality of performance of the controllers and the controller initial and recurrent training is ineffective. The Safety Board learned that the staff assigned to the program were routinely being used to provide operational shift coverage. There were four individuals assigned to quality assurance and training at O'Hare—the assistant manager for training and three quality assurance and training specialists; however, they were not able to perform their assigned duties. One specialist was detailed to the Regional Office full-time to process ATC academy graduates assigned to O'Hare, and another specialist was used 40 hours per week to work operational control positions. The remaining two specialists also were used to meet shift coverage about 25 percent of their available time. Clearly, these staff members were not being used to make the quality assurance and training program effective and efficient.³⁰

Just as the FAA, as noted above, did not effectively utilize its training and quality assurance staff, the Committee has reason to suspect that controllers also are not being effectively utilized. For example, as the 1985 FAA internal evaluation noted: "A survey of the facility traffic operations revealed that traffic for Saturday and Sunday is approximately 23% less than the traffic Monday through Friday. [Yet] [t]he facility [tower] staffing level remains the same for all seven days of the week."³¹

B. THE NTSB

The Committee appreciates the contribution of the NTSB's February 1987 report in bringing to light important systemic deficiencies in FAA's air traffic control system at O'Hare. Yet, the Committee is troubled by the Safety Board's failure to identify and address those issues in a more timely fashion.

The Committee notes that many of the problems addressed by the NTSB in its February 1987 report figured in the previously discussed March 1985 fatality that involved an air taxi aircraft that was crushed after being thrown upside down by the blasts of a 747. That accident precipitated an NTSB staff investigation and accident report which was never forwarded to Safety Board Members for consideration and which was not completed until July 30, 1986, 19 months after the accident. That delay is particularly troublesome given that the NTSB investigators on the scene appeared to

³⁰ Ibid.

³¹ L. Lane Speck, "Managerial and Operational Effectiveness Evaluation—O'Hare Tower, May 13–17, 1985" (August 6, 1985).

have completed their work in a timely fashion, less than 90 days after the accident.³²

The staff investigation of the March, 1985 blowover disclosed the same type of overall deficiencies that were subsequently acted upon by the NTSB Board members two years later in their February 1987 report following a series of subsequent controller errors.

Specifically, the investigation of the March 13, 1985 taxiway fatality revealed that although four controllers were assigned control tower duty that night midnight to 8:00 a.m. that:

Only two controllers worked the cab at one time. While two controllers worked the cab two controllers were in the study room.³³

When the two controllers returned from the study room to relieve their counterparts at 2:40 a.m. the controller in charge was advised that the 747 was already positioned on the run-up pad. Nevertheless, a short while later the relief controller cleared the air taxi to proceed along an adjacent taxiway where it was destroyed by the engine blasts of the 747.

Post accident interviews conducted by the NTSB investigators approximately one week later revealed the following:

Controller 1.—This full performance level controller directed the small aircraft to proceed along the bypass taxiway in violation of local FAA airport regulations which placed that taxiway off limits to traffic while another aircraft was conducting engine run-ups at a nearby pad reserved for that purpose.

According to Controller 1:

a. Upon arriving in the tower he received a relief briefing from controller 2 which included information on the 747 engine runup.

b. The assigned taxi route was selected as the most expeditious route to the hanger.

c. He observed that the 747 was facing south but did not know that this violated local FAA airport regulations.

d. He had never been advised prior to the accident, nor was he aware, that the bypass taxiway could not be used when an engine test was underway.

Controller 2.—Controller 2 was a full performance level controller. He was the controller in charge prior to being relieved by controller 1. Controller 2 recalled briefing controller 1 but could not recall whether the high power 747 run-up was part of the briefing.

When questioned by NTSB investigators a week after the accident concerning his knowledge of the restricted use of the bypass taxiway during run-ups, he accurately described the order. When asked when he had last reviewed that order he replied "approximately ten minutes ago." Further questioning revealed that the FAA O'Hare Deputy Manager had instructed controller 2 to review the order prior to being interviewed by the NTSB investigators.

³² NTSB Bureau of Technology, "Air Traffic Control Factual Report of Investigation: March 13, 1985" (June 2, 1985).

³³ NTSB, "Factual Report Aviation: March 13, 1985 Accident" (July 30, 1986), p. 2a. As, always other controllers were at work in the radar room at the time directing traffic in the vicinity of O'Hare.

Therefore, controller 2's "level of knowledge at the time of the accident," thus "could not be determined."³⁴

Significantly, the Deputy Manager denied having instructed controller 2 to review the order in question prior to the interview.³⁵

Controller 3.—Controller 3 was a developmental controller who was only certified to transmit routine messages to aircraft. As such, she was not authorized to issue movement instructions to any aircraft nor direct ground control traffic. Voice recordings revealed, however, that controller 3 handled some ground traffic before and immediately after the accident and had not signed the ground control log. Accordingly, with two of the controllers assigned tower duty that night away from their posts and with a developmental controller in the tower, who was not authorized to direct aircraft, the remaining controller on actual duty was left to work four positions at the time of the accident—inbound and outbound ground control, takeoffs and landings. The NTSB investigators did not pursue whether that typical scheduling arrangement contributed to the accident. Nor, apparently did the NTSB learn that this was not the first engine run-up accident at O'Hare that occurred under similar circumstances.

Taken together, the 1985 NTSB staff investigation, although not fully and vigorously pursued, pointed to the following examples of lax training and adherence to mandated procedures, the hallmark of the subsequent 1986 controller errors which the Safety Board subsequently addressed:

. . . A full performance level controller lacked even a perfunctory knowledge of relevant FAA airport regulations concerning the positioning of aircraft during engine run-ups and the use of an adjacent taxiway.

. . . A high ranking FAA O'Hare air traffic control supervisor reportedly sought to coach a second full performance level controller concerning those regulations prior to his being interviewed by the NTSB while subsequently denying having done so.

. . . FAA supervisory personnel routinely ignored an FAA directive concerning the proper positioning of aircraft conducting engine run-ups.

. . . A developmental control shared duties on a position that she was not qualified to work.

. . . FAA management in assigning four controllers to work the late night shift regularly permitted two controllers to be on "break" throughout the night so that on the night of the accident a controller worked four positions when paired with a developmental controller who was not certified to work any of those positions.

In the view of the Committee, the NTSB in not developing and pursuing its 1985 staff findings which pointed to major systemic deficiencies at the nation's busiest airport, delayed for a year and one-half the initiation of Board recommendations to improve the

³⁴ NTSB, Bureau of Technology, "Air Traffic Control Factual Report of Investigation: March 13, 1985" (June 2, 1985), p. 4.

³⁵ Ibid.

safety of air traffic control at O'Hare. Significantly, the controller who claimed that he had no knowledge of engine run-up noise restrictions and who directed the small aircraft to within 85 feet of the 747, was involved in the May 17 and June 29, 1986 operational errors that were later reviewed by the Safety Board. (The Safety Board did not disclose that fact in its February, 1987 report.)

One does not have to accept all of the NTSB's delayed recommendations to determine the existence of serious safety problems at the O'Hare air traffic control facility. That one plane passed less than 150 feet over the top of another plane heading down a runway prior to takeoff is bad enough. For essentially the same thing to occur about 90 days later, causing the blast from one plane to damage the other, is more evidence of a serious safety problem. To note that there were no less than 23 reported operational errors at O'Hare in 1986, is to restate the obvious.

V. FINDINGS

Based on the record compiled by its Subcommittee on Government Activities and Transportation and its review of that record, the Committee finds the following with respect to the safety of FAA air traffic control at Chicago O'Hare International Airport:

(1) Reported controller errors at O'Hare Airport increased from 14 in 1985 to 23 in 1986.

(2) The increase in reported controller errors at O'Hare occurred in the context of a 13-percent decline in such errors nationwide.

(3) Recent controller errors at O'Hare potentially could have led to the death of possibly scores of persons.

(4) The controller error rate at O'Hare, on its face, is evidence of an unsatisfactory and unsettling level of air traffic safety at O'Hare.

(5) The work of the GAO, the NTSB and the Subcommittee on Government Activities and Transportation has revealed serious problems at O'Hare in terms of staffing levels, training, controller recertification following an error, quality assurance and management.

(6) The FAA did not respond in an adequate nor timely fashion to the problems at O'Hare as reported by its own in-house evaluators and as underscored by the subsequent increase in controller errors.

(7) The NTSB was remiss in not following through on an investigation that it commenced in the spring of 1985 following the death of a pilot whose plane was blown over by the blasts from a nearby 747. That in turn contributed to a delay in seeking to rectify conditions that led to subsequent controller errors at O'Hare.

VI. RECOMMENDATIONS

The Committee is aware that last September the FAA at O'Hare prepared an "Action Plan" to cover 12 issues that surfaced during its recent spate of controller errors, portions of which were scheduled for implementation prior to the February 1987 NTSB report.

Short of a lengthy on-site review, the Committee has no immediate means of determining the effectiveness of that plan. Its existence, however, has enabled the FAA to characterize the subsequent NTSB report as "outdated." The Committee hopes that to be the case. However, the Committee questions whether an FAA management that permitted such problems to arise in the first instance can be exclusively relied upon to remedy them.

Accordingly, the Committee's primary recommendation concerns the need for the FAA in Washington to demonstrate a willingness and ability to assume an increased responsibility for a safe and efficient air traffic control system at O'Hare Airport. In light of the record number of controller errors at O'Hare and the potential deaths of scores of persons in the aftermath of certain of those errors, the FAA cannot afford to continue its laissez faire approach to air traffic control problems at O'Hare Airport.

To that end, the Committee urges the FAA Administrator to appoint a high level review board from outside the Great Lakes Region to perform an in-depth review of air traffic control at O'Hare and to report to the Administrator within 120 days. Specifically, that review group should examine such issues as controller staffing levels, training, workload and overall level of expertise. Additionally, the review should examine quality assurance and controller error prevention programs.

In recommending an Administrator's Review, the Committee appreciates the need to increase the number of controllers at O'Hare and the percentage of full performance level controllers. Nevertheless, the Committee cautions that the problem at O'Hare is not simply one of too few controllers. None of the controller errors reviewed by the NTSB or discussed in this report occurred during periods of heavy traffic. Indeed, the majority of controller errors at O'Hare have occurred during light or moderate traffic. As such, the primary problems at O'Hare are those of poor supervision and training in an atmosphere of apparent laxity and inattention to detail.

The key to improved air traffic safety at O'Hare does not, therefore, admit to facile solutions in terms of merely increasing controllers or possibly reducing flights. The problems are deeper in pointing to an air traffic control system that has been badly managed.

Therefore, to improve the safety of air traffic control at O'Hare International Airport in Chicago, the Committee recommends that:

- (1) The FAA Administrator appoint an Administrator's Review Board to examine the FAA's air traffic control system at O'Hare International Airport and to monitor the implementation of the FAA's September 1986 "Action Plan" to improve safety at that facility.

- (2) In conducting that review the Administrator's Review Board should elicit testimony from interested parties in public session. Individual controllers should be encouraged to participate with no fear of reprisals.

- (3) The Administrator's Review Board report to the Administrator with recommendations for improving the safety of air traffic control at O'Hare within 120 days of its formation.

(4) The FAA Administrator report to the Committee within 45 days of receipt of the Review Board report concerning his acceptance or rejection of the Board's recommendations.

A P P E N D I X E S

APPENDIX 1.—SYNOPSIS OF ORD ERRORS 1985

February 6, 1985—The controller descended American 114 to 8,000 feet, the pilot read back descending to 7,000 feet. The controller did not catch the mistake and the American flight passed within 400 feet vertically and $\frac{3}{4}$ miles horizontally of a Brittaire 734.

February 27, 1985—Midway 388 departed Midway airport, climbing to 3,000 feet. N 200DK departed Gary, Indiana, climbing to 2,000 feet. The controller mis-identified N200DK, and climbed the aircraft to 3,000 feet. The two aircraft passed within 200 feet vertically and .8 miles horizontally.

March 28, 1985—American 252 and N1125M were both at 5,000 feet. The south departure controller allowed American 252 to enter the south satellite airspace without coordination. American 252 passed one-half mile behind N1125M.

April 4, 1985—American 252 was on arrival to ORD runway 9L, United 725 was departing runway 4L. American 252 executed a go around, passing within 50 feet vertical and 1650 feet behind United 725. The local controller was providing visual separation, however changed both aircraft to departure control. This action negated visual separation.

May 8, 1985—N822CA was on a vector to Midway at 4,000 feet. N4114H departed Midway assigned 4,000 feet. The departure should have been restricted to 3,000 feet. The aircraft passed within two miles of each other.

June 30, 1985—The ORD ARTS failed, and the controller forgot Northwest flight 458, who continued southbound through the localizer course passing one mile behind United 956, and 500 feet above the other aircraft.

July 3, 1985—American 160 was on base leg 13 miles southeast of ORD at 3,500 feet. The departure controller climbed DAW 702 off of Midway through the altitude of American 160. DAW 702 passed $\frac{1}{2}$ miles behind and 600 feet above American 160.

July 3, 1985—American 321 and Northwest 452 were on vectors to ORD. The controller didn't recall descending American 321, who passed within $1\frac{1}{2}$ miles horizontal and 100 feet vertically of American 321.

July 23, 1985—Republic 727 was on vectors to runway 14L at ORD. The controller assumed he had given Republic 727 a heading to join the localizer, which he had not. Republic 727 passed $\frac{1}{2}$ mile behind and 600 feet above United 916.

July 27, 1985—United 268 passed within 800 feet vertically and $1\frac{1}{2}$ miles horizontally of American 637. The controller had issued

United 268 a clearance to descend, and then told the aircraft to expedite. United 628, also on the frequency took the clearance. The controller did not catch the read back by the wrong aircraft.

October 17, 1985—N971LL was unbound to DuPage from Meigs, descending from 4,000 to 3,000 feet. The departure controller sent Midway 347 over to the other controller at 3,000 feet, conflicting with N971LL. No coordination was completed. Separation was 100 feet vertically and $\frac{1}{4}$ miles.

November 14, 1985—Northwest 751 was cleared for takeoff on runway 4L. United 926 was touching down on runway 14L. Separation was not maintained at the runway intersection.

November 19, 1985—City 14, a vehicle was cleared onto the runway for a runway check. Delta 1162 was cleared for takeoff 3 minutes later. The vehicle reported clear of the runway $1\frac{1}{2}$ minutes after Delta was issued takeoff clearance.

November 24, 1985—American 439 departed ORD heading 220 degrees climbing to 5,000 feet. Midway 177 departed Midway climbing to 6,000 feet. The aircraft passed within 500 feet vertical and 1 mile horizontally of each other.

APPENDIX 2.—SYNOPSIS OF ORD ERRORS 1986

January 11, 1986—Britt Air 711 departed runway 22L, heading 270 degrees climbing to 5,000 feet. American 287 departed runway 27L heading 250 degrees climbing to 5,000 feet. Separation decreased to 200 feet and 2 miles.

January 16, 1986—Air Wisconsin 923 departed ORD climbing to 14,000 feet. N8BX departed Palwaukee, without being coordinated and the two aircraft passed within $\frac{1}{2}$ mile horizontally and 500 feet vertically.

January 20, 1986—American 169 departed ORD climbing and was level 5,000 feet. Midway 157 departed Midway, northwest bound. The departure controller stopped Midway 157 at 5,000 feet to avoid a departure from ORD. The two aircraft passed 1.76 miles from each other.

February 24, 1986—The departure controller failed to ensure separation between Air Wisconsin 939 and Midstates 281 both departures from ORD. The aircraft passed within 700 feet vertical and 1.43 miles horizontally.

February 25, 1986—United 127 was at the intersection of taxiway "T1" and runway 32L for departure. Air Wisconsin 842 was on final for runway 9L. The controller cleared United 127 for takeoff, anticipating the aircraft would pass behind the arrival. This did not occur and United 127 had to delay rotation to avoid the arrival.

February 14, 1986—United 306 was overtaking the preceding aircraft on approach. The tower controller issued United 306 instructions to go around, and turned the flight back into the airport. United 306 passed within .9 miles of Britt Air 250 on final approach.

February 7, 1986—American 508 overtook N6670C on climb out, passing within 800 feet vertically and 1.20 miles horizontally of the other aircraft.

April 10, 1986—The tower controller failed to provide separation between TWA 811 and United 472 on departure.

May 17, 1986—The tower controller failed to provide separation between American 695 and US Air 573 on crossing runways, both aircraft were departing.

May 23, 1986—The controller forgot N16522 at 4,000 feet, and climbed United 222 within 1 mile of the aircraft.

June 16, 1986—The controller descended Japan Airlines flight 10 to 10,000 feet. The pilot read back and descended to 3,000 feet. The flight conflicted with N270HC, passing within 200 feet vertically and 1.25 miles horizontally.

June 26, 1986—The controller issued N30LM 7,000 by mistake. The aircraft conflicted with Air Wisconsin 761, passing within 400 feet of the aircraft.

June 30, 1986—The tower controller issued both departures a heading of 070 degrees off of intersecting runways. Separation decreased to 200 feet vertical and 1 mile horizontal.

July 2, 1986—Separation was lost between two departures when one controller adhered to noise abatement procedures and the other one did not.

July 15, 1986—The controller stopped an arrival at 6,000 feet to allow a departure from Palwaukee to pass below it. The controller forgot to reclear the arrival for the approach. American 181 was at 6,000 feet and conflicted with N371MC at the same altitude. Separation was 100 feet vertical and 1.02 horizontal.

August 11, 1986—The city vehicle was cleared onto the runway for a runway check. The controller forgot the vehicle and cleared an aircraft for takeoff.

September 17, 1986—American 231 conflicted with American 293, when the departure controller prematurely lifted a speed restriction. Separation was 200 feet vertical and 4.03 miles horizontal in Center airspace.

October 1, 1986—Wild Onion 1512 was issued a clearance to 8,000 feet. The aircraft was handed off to Rockford approach with no data strip being transmitted. Rockford based control on the aircraft read out of 6,000 feet in the climb. Wild Onion 1512 conflicted with N45114 at 6,000 feet. The ORD controller did not abide by the Letter of Agreement with Rockford.

October 22, 1986—The local controller cleared United 141 for takeoff on runway 9R with United 725 in position on runway 22L. United 141 passed 500 feet above United 725.

October 25, 1986—American 955 was allowed to land while American 321 was still on the runway.

October 31, 1986—The controller failed to ensure separation between two enroute aircraft.

November 20, 1986—The controller vectored a departure in close proximity to another aircraft, separation was .7 miles.

December 9, 1986—The controller failed to ensure separation between crossing courses. . . . Separation deteriorated to 200 feet vertical and 1.86 miles horizontal.

ADDITIONAL VIEWS OF HON. J. DENNIS HASTERT

This report's findings and recommendations are appropriate and timely. Clearly, there are a number of problems with the air traffic control system at O'Hare International Airport that, taken together, have resulted in an overall decrease in efficiency and safety at the facility.

A number of other important issues were raised at the Government Activities and Transportation Subcommittee hearing, but are not discussed in the report. I feel it is essential that these issues also be brought to the attention of the Committee, in order for us to gain a full understanding of all the factors that impact air traffic safety in the Chicago area.

One of the key issues raised at the hearing concerned the 1984 implementation of a high-low sectorization traffic control system at the Chicago Air Route Traffic Control Center in Aurora, Illinois (Chicago Center). As a consequence of this action, all air traffic controllers (ATC) at the Chicago Center, regardless of their experience or skill level, were redesignated as trainees and were required to recertify on both high altitude and low altitude traffic sectors. Prior to this, ATC's were certified—and specialized—on either one sector or the other.

Ostensibly, the Federal Aviation Administration (FAA) mandated this change to produce more-versatile controllers and to increase flexibility in air traffic management. It has become apparent that what it got was quite another thing all together. Since the Subcommittee hearing in February, I have further discussed this issue with ATC's at the Chicago Center. They are convinced that, due to the complexity and volume of traffic handled by the Center, the high-low policy has contributed to an increase in operational errors at the facility.

Part of the problem was brought on by the fact that the implementation of the high-low system was accompanied by a reduction in the overall effectiveness and quality of developmental controller training. Prior to 1984, Chicago Center ATC's were trained in groups of two sectors at a time (usually the less active "wing sectors"). Thereafter, training for each new sector required less time, because the type of traffic and the conditions were the same as those on which the controllers received their initial instructions.

Under high-low, more training time and therefore more trainers are needed to prepare controllers to deal with the added variables involved in dual-altitude traffic management. However, due to inadequate staffing levels and congressional pressure to increase the number of fully certified controllers on the job, trainees are being "rushed" through the three-step training process, and often are being forced to work sectors of traffic they may not be adequately prepared to handle. In addition, some of these inexperienced ATC's are then expected to provide on-the-job training for other develop-

mental controllers. This short-cut approach to training has already produced operational errors and near collisions that were blamed on inadequate controller training or inexperience.

Another potential safety hazard of the high-low system is created by the requirement that controllers switch from one altitude to the other (often more than once) during a shift. There are certain critical differences between high and low altitude traffic management that must be taken into account to efficiently and safely direct traffic through each sector. If a controller fails to adjust effectively when moving from one altitude sector to the other, what may appear to be nothing more than a minor miscalculation or misreading could result in a violation of air separation requirements, a near collision, or worse. Even experienced ATC's have had problems in this area.

I have been informed that the Chicago Center is scheduled to convert solely to a low altitude facility in 1992 or thereabout. In light of this fact, the FAA should reconsider its high-low policy at the Chicago Center, or at least seriously consider some of the concerns and suggested improvements that have been made by controllers since the new policy was put into effect. At a minimum, the agency should open up new channels of communication between controllers and area managers and the FAA in Washington. Otherwise, a repeat of the 1981 job action will all but be inevitable.

Another primary issue was the inadequacy of staffing levels at both O'Hare and the Center. Although the FAA has on numerous occasions expressed the intention of increasing the number of controllers—and particularly, full performance level controllers—at both facilities, there are still a number of obstacles that, if not alleviated, will continue to deter qualified controllers from transferring to the Chicago area.

During the hearing, then FAA Great Lakes Regional Director Paul Bohr assured the Subcommittee that he was taking positive, creative steps to recruit qualified, experienced ATC's to relocate in the Chicago area. He, along with other witnesses, discussed some of the reasons why it is difficult to bring controllers into the region, including the local climate, cost of living, and challenging work environment (i.e. the quantity and complexity of traffic). In subsequent discussions, I have learned of another obstacle that has not received much attention.

The 1981 strike and subsequent firing of 11,400 ATC's left most air traffic facilities with substantially less than the number of controllers necessary to effectively manage the work load. As a result, facility managers who are struggling to rebuild their work force are extremely reluctant to let go of experienced ATC's. This creates problems for controllers who seek promotions or transfers to other FAA facilities. Recently, a Chicago Center controller related the difficulty he encountered attempting to do just that.

Rather than being discouraged, this individual cited the challenging aspect of the Chicago area as a positive factor that motivated him to seek a transfer. Unfortunately, he encountered a major roadblock that almost frustrated his efforts to relocate. When he originally submitted a request to transfer from the Houston Center to Chicago, Houston management informed him that he could not get a release date until the Chicago Center made him an offer of

employment. Accordingly, he visited Chicago to inquire about such an offer, but was informed that no such offer could be extended until the Houston Center provided him with a release date. This stalemate continued for nine months, with neither region willing to yield, until this individual was finally able to find a controller at Chicago willing to make a mutual trade in duty stations. This one-for-one trade was eventually approved by both Centers, as long as the controllers were willing to pay their own moving expenses. We can only wonder how many other qualified controllers have tried but failed to get released from some other facility so that they could transfer to Chicago.

The FAA should consider modifying its personnel transfer policy, to allow controllers more flexibility in bidding on vacant positions at other air traffic control facilities and to receive deserved promotions. One way to accomplish this would be to centralize final authority on proposed relocations. If a facility or regional manager denies a transfer request, the controller should have the opportunity to appeal to the FAA Administrator or a designated authority. Otherwise, ATC's will continue to encounter obstacles that limit their ability to grow professionally, discouraging them and others from remaining air traffic controllers.

J. DENNIS HASTERT.



+AEQ 7134



3 5556 039 017264

1/5

WT 187



